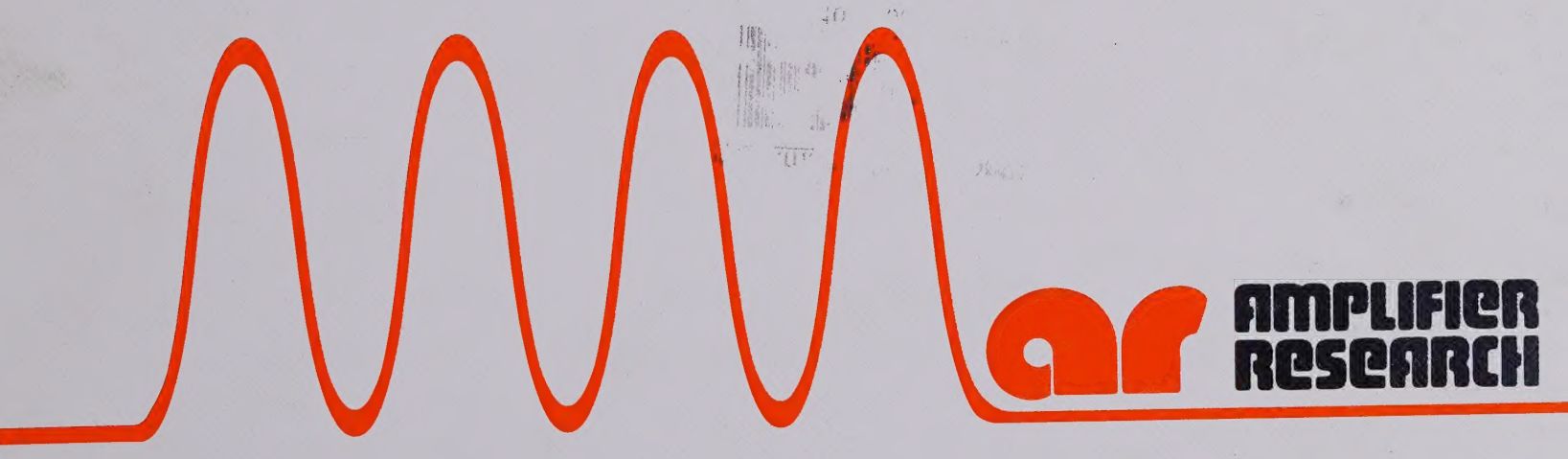
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AMPLIFIER
RESEARCH

Operating and Service Manual

MODEL

DC3001

PART NUMBER

1001782-501

SERIAL NUMBER

12083

AMPLIFIER RESEARCH

Souderton, PA 18964-9990 USA

TEL 215-723-8181 TWX 510-661-6094 FAX 215-723-5688

Operating and Service Manual

MODEL

DC3001

PART NUMBER

1031782-501

SERIAL NUMBER

1Z083

OPERATING INSTRUCTIONS

MODEL DC3001

WARNING:

DO NOT EXCEED MAXIMUM POWER RATINGS.
DO NOT DROP. INTERNAL COMPONENTS ARE FRAGILE.

Operation of the Model DC3001 is quite simple. The input signal is fed into the jack (J1) marked Input and the output is taken from the Jack (J2) marked Output. The input and output jacks on the unit are Type N (Female).

Forward coupled output is taken from Jack (J3) marked FWD, and REVERSE coupled output is taken from Jack (J4) marked REV. Both coupled output jacks on the unit are Type BNC (Female).

See Specification Sheet for detailed specification.

ECN	DATE	REV
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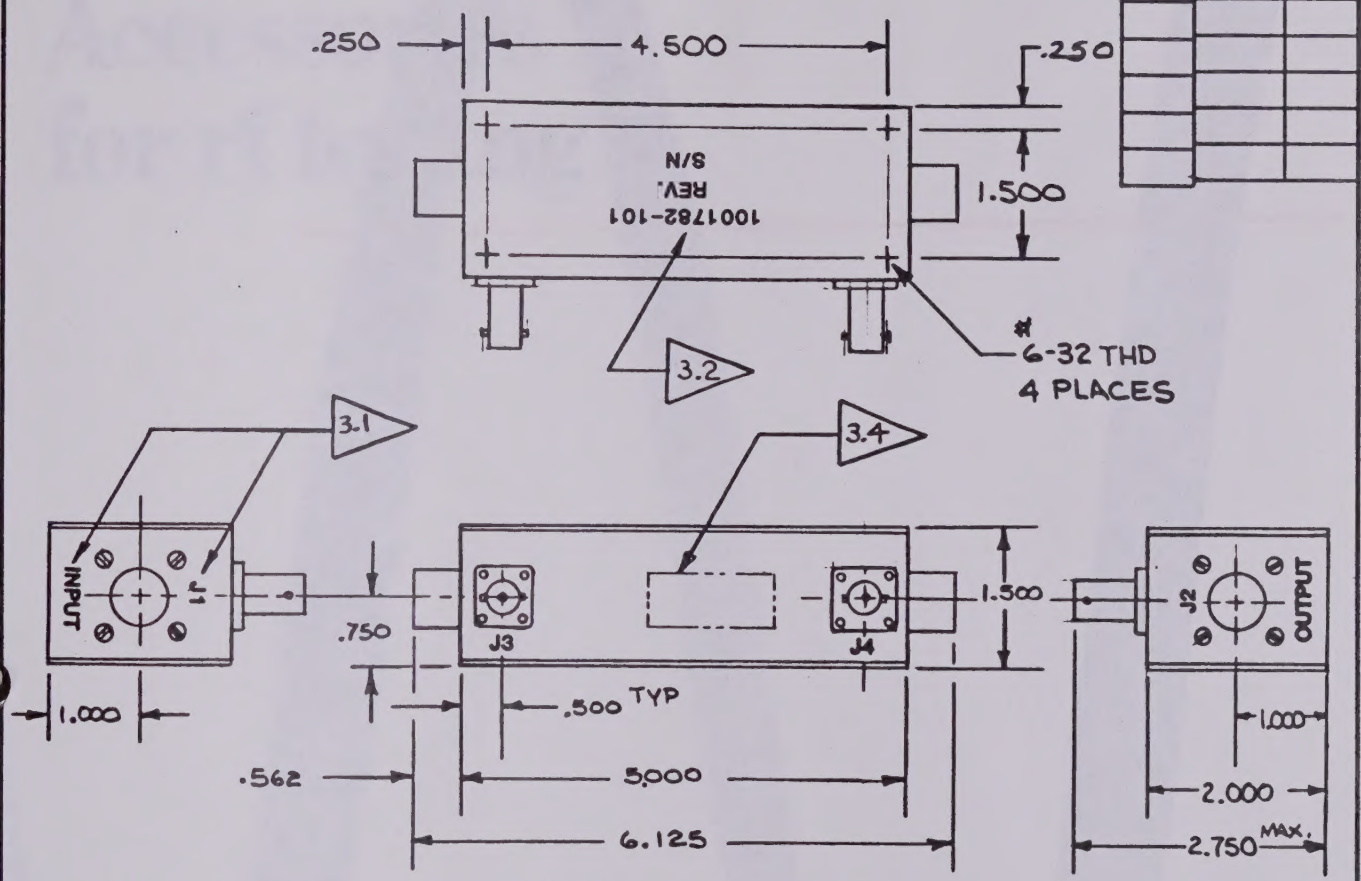
1455	25MAR83	B



QTY. REQD.	ITEM	PART NO.	DESCRIPTION	MARK	FIN	MATL
		PARTS LIST				

UNLESS OTHERWISE SPECIFIED
DO NOT SCALE DRAWING.
DIMENSIONS ARE IN INCHES AND INCLUDE PLATING THICKNESS.
ALL THREADS ARE UNIFIED NATIONAL SERIES, CLASS 2.
REMOVE ALL BURRS AND SHARP EDGES.
TOLERANCE: ±.010.

DC 3001
USED ON MODEL

DRAWN J. VOGENBERG
DATE 23 MAR 83
CHKD
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AMPLIFIER RESEARCH

COUPLER, DIRECTIONAL

DWG. SCALE	DWG. NO.	REV.
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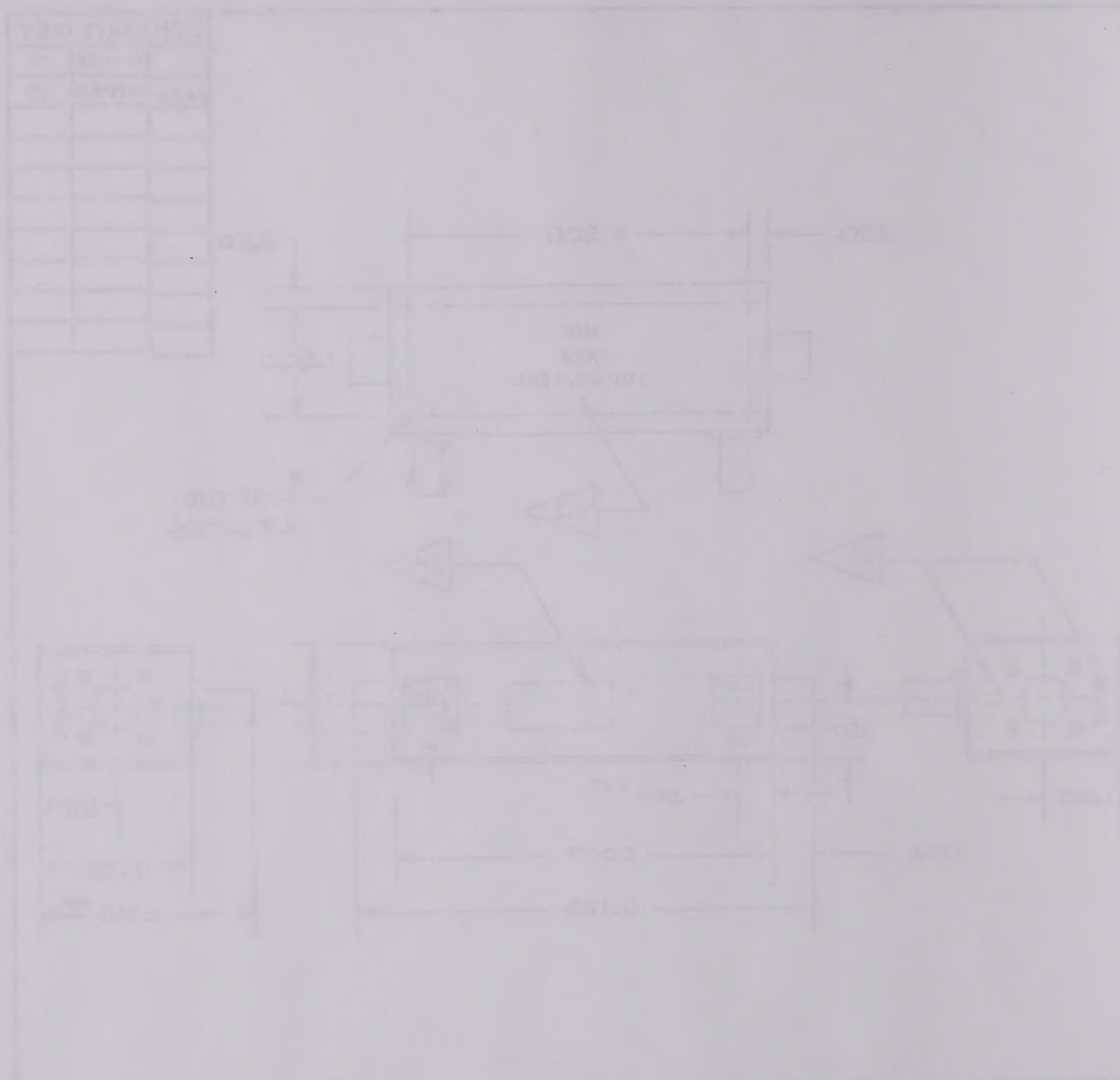
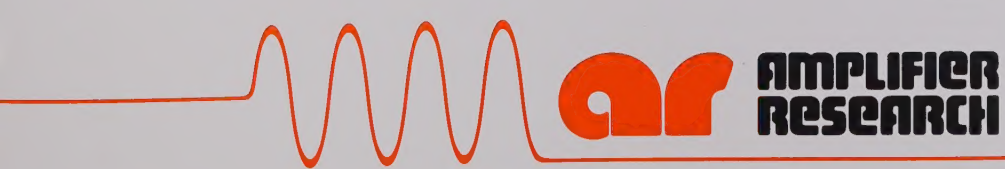


March 1992

Accessories for rf testing



AMPLIFIER RESEARCH

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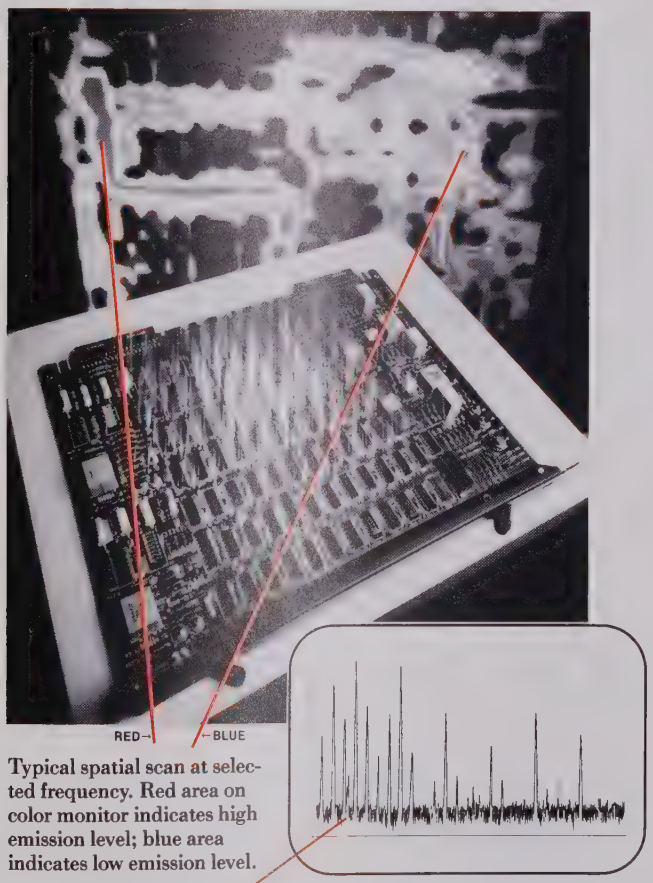
New EMSCAN emissions scanner

- **Spectral scan identifies emission frequencies.**
- **Spatial scan locates and color-maps high-, medium-, and low-level emission sites at any selected frequency.**
- **Test results storable for later comparison after corrective design modifications have been made.**
- **Frequency range 10-750 MHz.**



Typical spatial scan at selected frequency. Red area on color monitor indicates high emission level; blue area indicates low emission level.

Spectral scan identifies key frequencies for further study.

The EMSCAN emissions scanner locates and quantifies magnetic-field activity on and near printed-circuit boards and other equipment that can be placed on its 9″ × 12″ scanner plate. Use of EMSCAN can reveal unacceptable emissions levels at an early stage of product development, thus greatly reducing the cost of redesign before compliance testing.

A scanning array of 1280 current probes under the surface of the EMSCAN board collects magnetic-field-level information which is processed by the user's spectrum analyzer or receiver and any of a wide range of 386- or faster PCs or workstations. The EMSCAN software, written under "Windows" 3.0, makes emissions analysis easy and reliable, even for a non-engineering-level operator.

The basic EMSCAN package consists of the scanner board with integral power supply and IEEE-488 C interface, and the software for conducting all the scanning, storage, retrieval, and comparison tests. A receiver or spectrum analyzer and a computer with color monitor are required.

SPECIFICATIONS

RF Performance

Frequency Response: 10-750 MHz
Sensitivity (typical): 1 μA of current generates 0.5μV at 100 MHz when the PC board to scanner separation is <2.5 mm
Isolation: 30-35 dB (probe-to-probe)
Dynamic Range: Receiver/Analyzer-Dependent
RF Connector: BNC, 50 ohm

Physical Data

Scanning Array Area: 12 × 9.6 in. (30.4 × 24.4 cm)
Probe to Probe Spacing: 0.3 in. (7.6 mm)
Number of Probes: 1280
Scanner Dimensions
(W × H × D): 40.6 × 5.1 × 33 cm (16 × 2× 13 in.)
Interface: IEEE-488C (GPIB)
Computer/Workstation Requirements:
Must have IEEE-488, color VGA display, DOS and WINDOWS 3.0. Will operate with any WINDOWS 3.0-compatible PC (386 or above is strongly recommended)
Power Requirements: +5V @ 1A, +12V @ .25A
(120 Vac converter supplied)

Ultra-broadband field monitor systems

Models FM1000 and FM2004

- **Single isotropic probe covers five decades (10 kHz to 1 GHz)**
- **1- to 300-V/m sensitivity**

Here are the first electric-field monitoring systems to cover the entire rf spectrum to 1 GHz without bandbreaks or pauses for changing sensors. All measurement, control, and alarm operations are performed by this compact and efficient two-component system—the sensor probe inside the shielded room, and the master control console outside, connected through fiberoptic cable*.

Amplifier Research Models FM1000/FM2004 provide two digital outputs (to IEEE-488 and RS-232 instrumentation), two switch-selectable 0-4 Vdc analog outputs, audible and SPDT overrange and power-loss alarm, and a highly readable LED digital display—all controlled at the front-panel keypad.

The small isotropic probe (FP1000/FP2000) with its integral battery-powered transceiver communicates with the control station through a twin fiberoptic cable. While a single sensor probe covers the frequency spectrum from 10 kHz to 1 GHz, up to four of these probes may be connected to the monitor for measuring field strength at various points in the shielded room. The operator can select high, low, or average reading from any or all selected probes, or any single axis of the three-axis probe, thus enjoying complete flexibility in choice of signal input and automated leveling for EMC testing.

*15-meter cables between FM1000 and FP1000; up to 100-meter cables between FM2004 and FP2000.

SPECIFICATIONS

Model FM1000/FM2004 control center and system

Sensitivity: 1 to 300 V/m

Frequency response: 10 kHz-1000 MHz ± 2 dB

Inputs: Up to 4 independent probes

Overload withstand: 1000 V/m on any range

Outputs: LED digital display, resolution 0.1 V/m
IEEE-488 interface
RS-232 interface
Analog (BNC): 0-4 Vdc proportional to % of selected range; log proportional to log of displayed value
Alarm—audible signal and SPDT contact (2.5A/120Vac)

Power requirement: 120/240 Vac, 50/60 Hz, switch selectable, 1A max.

Model FP1000/FP2000 Electric Field Probe

Isotropicity: ± 0.5 dB on three orthogonal axes

Sensitivity: 1-300 V/m

Frequency response: 10 kHz-1000 MHz ± 2 dB

Sampling rate: 1 to 24 samples/sec

Power requirement: NiCad battery, rechargeable through charging jack. Charger provided with each probe. Battery operates up to 17 hours on a full charge, and is easily replaceable through access panel.

General:

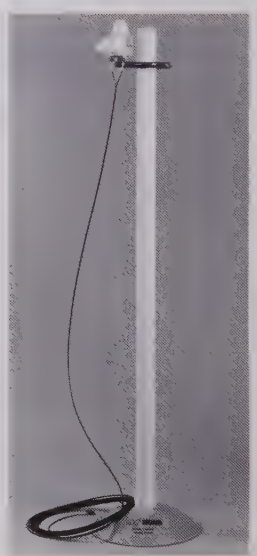
Dimensions, Models FM1000/FM2004 (W × H × D): 28 × 16.5 × 20.3 cm (11 × 6.5 × 8 in.); optional rack mount available.

Dimensions, Models FP1000/FP2000: 6.35 cm (2.50 in.) cube with sensor radomes on three sides. Total package fits within 20.3 cm (8 in.) spherical area dia.; 1/4-20 tapped hole in sensor base for mounting.

Weight, FM 1000/2004: 6.8 kg (15 lb).

Weight, FP 1000/FP2000: 400 g (14 oz).

Operating temperature range: 10-40°C (50-122°F) @ 5-95% RH non-condensing.



Probe Stand

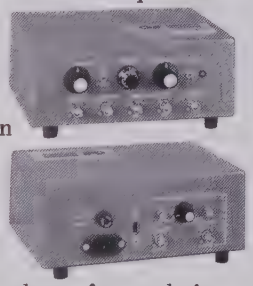
The Model PS-2000 non-metallic floor stand is available as an option for positioning the FP1000 or FP2000 field probe at any height up to 63 inches (160 cm). Screw clamp is included.

Broadband leveling and control preamplifier

Model 888

- **10 kHz to 1,000 MHz**
- **High dynamic range**
- **Blanking and pedestal outputs, rf delay**

The Model 888 solid-state leveling preamplifier provides the control functions most often required in high-power rf applications. Delivering 40 dB of automatic gain control across the 10-kHz-to-1,000-MHz spectrum, it is indispensable in constant-field rf susceptibility testing, power-output control, modulation-envelope feedback, and simulation of current and voltage sources.



It accepts a monitor input voltage of any polarity (positive, negative, or differential) from such sources as an electric-field sensor system (see page 4), a directional coupler (page 7), a power meter, or other control signals.

In pulse applications, the Model 888 provides a pedestal output of adjustable width, blanking output, and adjustable rf output delay triggered at the conclusion of a blanking pulse to permit the power amplifier to settle before the next rf signal is applied. These features make the 888 useful in NMR spectroscopy and other pulse applications.

Compatible with all AR amplifiers and other amplifiers within its bandwidth and power-handling capability, as well as with a wide range of rf signal sources.

SPECIFICATIONS

Rf characteristics	
Power output, minimum	10 milliwatts
Frequency range	10 kHz-1000 MHz
Flatness (open loop)	± 1.5 dB max.
Rf gain	10 dB min.
Manual gain control	30 dB min.
Harmonic distortion at 10 mW output	Minus 25 dBc
Input and output impedance	50 ohms nominal
Leveling characteristics	
Monitor input polarity	Plus, minus, differential
Threshold adjust range	Up to 5 V
Monitor input impedance	10,000 ohms, nominal
Closed-loop control of rf gain	35 dB min. @ 0.01-1000 MHz 40 dB min. @ 0.01-500 MHz
Loop response	See Note 1
Pulsed characteristics	
Input pulse amplitude	+ 5 Vdc
Input impedance	50 ohms nominal
Rf envelope rise time	0.5 microsecond (excluding RF delay)
Rf envelope fall time	0.3 microsecond
Rf delay, adjustable (2) (5)	10 microseconds to 1 millisecond
Pedestal pulse amplitude	− 5 Vdc nominal into 50 ohms
Pedestal pulse length (3) (5)	10 microseconds to 10 milliseconds
Blanking pulse output	+ 5 Vdc nominal into 50 ohms
General	
Primary power	100/110/120/200/220/240 Vac 50/60 Hz, 15 watts
Connectors	Type BNC female
Weight	2.3 kg (5 lb)
Size (W × H × D)	24.0 × 9.0 × 16.0 cm (9.5 × 3.5 × 6.3 in.)

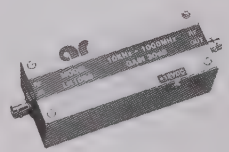
Notes: (1) Response switch has multiple selection, which permits matching the detector response to avoid loop oscillation.
(2) Rf delay time starts at the end of the blanking pulse.
(3) Pedestal pulse length starts at the end of the blanking pulse.
(4) Adapters are available for 19-inch rack mounting. Requires 5.25-inch panel space.
(5) These outputs are used to interface with Amplifier Research amplifiers which have pulse mode and/or blanking features.

Broadband low-noise preamplifier

Model LN1000

- **30 dB gain**
- **10 kHz to 1,000 MHz**

With its very low noise figure, the Model LN1000 is a useful preamplifier for increasing the dynamic range and sensitivity of receivers with relatively high noise figures. Low noise plus high gain (30 dB) in conjunction with an ultra-wide bandwidth qualify the Model LN1000 for duty wherever a system noise level must be reduced without discarding higher-noise components.



SPECIFICATIONS

Frequency response	10 kHz-1000 MHz
Power output (<1 dB compression)	+ 11 dBm
Gain	30 dB minimum
Gain flatness	± 1.5 dB
Input for rated power output	−18 dBm
Noise figure	3.5 dB typical, 4.5 dB max (2-1000 MHz)
Input impedance	50 ohms, VSWR 2.5:1 max
Output impedance	50 ohms, VSWR 2.0:1 max
Modulation capability	Will faithfully reproduce AM, FM or pulse modulation appearing on the input signal.
Harmonic distortion	− 20 dBc max at rated output
Third-order intercept point	+ 21 dBm typical
Primary power	120/240 Vac, 50/60 Hz. External supply with integral power plug furnished. Export applications may require adapter plug.
RF connectors	Type BNC female
Weight	0.68 kg (24 oz)
Dimensions (W × H × D exclusive of power supply and connectors)	12.7 × 3.8 × 5.1 cm (5 × 1.5 × 2 in.)

Extended-bandwidth TEM cells

Models TC1510 and TC3020

• Frequencies up to 750 MHz

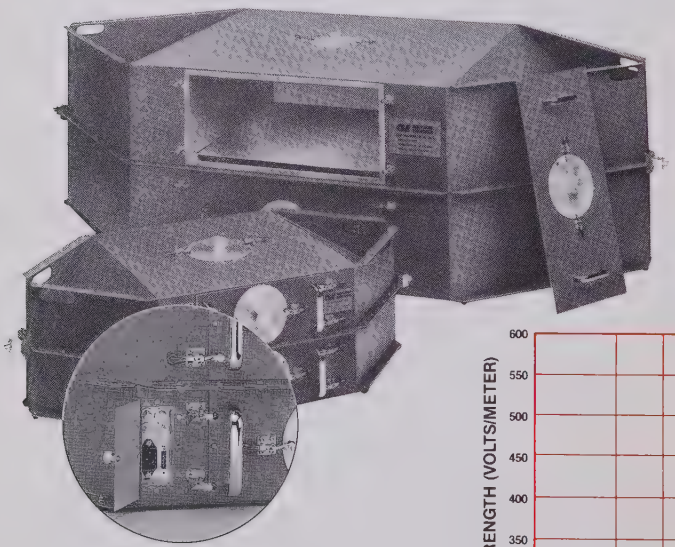
Historically, the Transverse Electromagnetic Mode (or "Crawford") test cell has been limited in its bandwidth by the available size of its test chamber. Essentially a shielded transmission line with a test chamber in its middle, the familiar TEM cell capable of holding a test object 15 cm wide had an upper frequency limit of 500 MHz.

New resonant-mode-suppression techniques developed at Amplifier Research have increased the bandwidth 50% for the same size test chamber; now, cells holding 15-cm-wide test objects have a dc-to-750-MHz bandwidth, while the larger cells, holding 30-cm-wide test objects, have a dc-to-375-MHz bandwidth.

The benefit of this greater bandwidth is immediately apparent: Many items which could not be adequately tested before in a TEM cell can now be tested in this convenient shielded chamber without resort to shielded rooms or free-space experimentation. Items such as field-strength and power meters can now be calibrated at the higher frequency levels not previously available.

When terminated in 50 ohms, Models TC1510 and TC3020 produce a uniform high-impedance field approaching that of free space throughout the area surrounding the object under test.

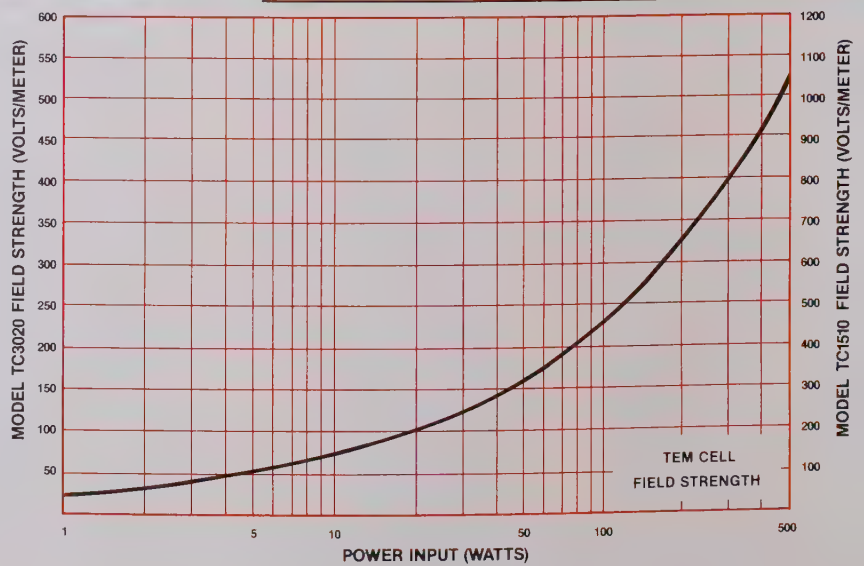
The termination load used with these TEM cells must be rated at 500 watts minimum (the maximum cw input power). Our Model LR0500 30-dB 500-watt attenuator is recommended as a termination. This provides an output which can be used for making power measurements or for providing a leveling reference.



NEW! Cable-access panel permits insertion of I/O cables for normal operation of test item without breaching the main doors.
Connectors included:
1 rf-isolated IEC female ac plug;
1 rf-isolated 15-pin Type D female;
4 BNC female.

SPECIFICATIONS

	Model 1510	Model 3020
Maximum size of device under test (W × H × D)	15.0 × 5.0 × 10.0 cm 5.9 × 2.0 × 3.9 in.	30.0 × 10.0 × 20.0 cm 11.8 × 3.9 × 7.9 in.
Power input, cw, max.	500 watts	500 watts
Frequency response	dc-750 MHz	dc-375 MHz
Impedance of cell	50 ohms	50 ohms
VSWR, maximum	1.2:1	1.2:1
RF Connectors (select from kit provided)	BNC female TNC female N female	BNC female TNC female N female
I/O connectors	1 rf-isolated IEC female ac plug 1 rf-isolated 15-pin "D" female 4 BNC female	1 rf-isolated IEC female ac plug 1 rf-isolated 15-pin "D" female 4 BNC female
Cell dimensions		
Total width	110.1 cm (43.7 in.)	211.3 cm (83.2 in.)
Total height	30.0 cm (11.8 in.)	60.2 cm (23.7 in.)
Total depth	57.1 cm (22.5 in.)	106.7 cm (42.0 in.)
Septum depth	36.1 cm (14.2 in.)	72.4 cm (28.5 in.)
Access port dimensions		
Top, outer (diameter)	14.2 cm (5.6 in.)	14.2 cm (5.6 in.)
Top, inner (diameter)	2.8 cm (1.1 in.)	2.8 cm (1.1 in.)
Side, outer (diameter)	10.7 cm (4.2 in.)	14.2 cm (5.6 in.)
Side, inner (diameter)	2.8 cm (1.1 in.)	2.8 cm (1.1 in.)
Side (W × H)	29.5 × 12.7 cm (11.6 × 5.0 in.)	59.9 × 25.4 cm (23.6 × 10.0 in.)
Weight	14 kg (31 lb)	52 kg (114 lb)



Dual-directional couplers

- **10 kHz to 1,000 MHz**
- **50 to 15,000 watts continuous**
- **All couplers dual-directional**

These seven models cover the rf spectrum from 10 kHz to 1,000 MHz (1 GHz), with continuous-power capability from 50 to 15,000 watts (peak pulse power to 50,000 watts). This wide range assures flexibility in coupling high-power amplifiers to oscilloscopes, voltmeters, power meters, spectrum analyzers, and other measuring instruments. Their dual-directional design lets the user monitor both forward and reflected power—a much-needed characteristic in rf susceptibility testing for field control and load protection.

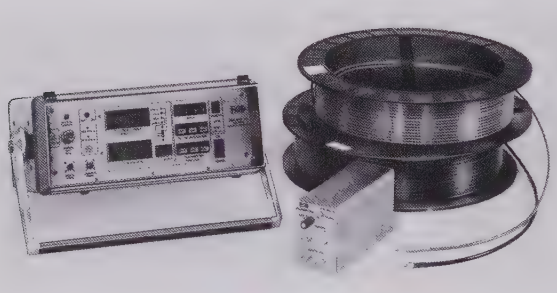
The table of specifications below gives a full picture of AR coupler parameters. Consult the factory for further specific information.

SPECIFICATIONS

	DC2000	DC3001	DC3010	DC4000	DC5000	DC6000	DC6100
Frequency range	10kHz-220MHz	100kHz-1000MHz	10kHz-1000Mhz	10kHz-100MHz	220-400MHz	400-1000MHz	100-1000MHZ
Power (max. watts)	2500 cw 5000 peak	50 cw 1000 peak	50 cw 1000 peak	15,000 cw 50,000 peak	2500 cw 5000 peak	1500 cw 3000 peak	500 cw 1000 peak
Coupling factor	50 ± 1 dB	40 ± 0.6 dB	40 ± 0.6 dB	60 ± 1 dB	50 ± 1 dB	50 ± 1 dB	53 ± 1 dB
Directivity typical minimum	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB	25 dB 20 dB
Insertion loss, max.	0.15 dB	0.5 dB	0.6 dB	0.1 dB	0.2 dB	0.2 dB	0.3 dB
Impedance (main line)	50 ohms, VSWR 1.2:1 max.	50 ohms, VSWR 1.3:1 max.	50 ohms, VSWR 1.3:1 max.	50 ohms, VSWR 1.2:1 max.	50 ohms, VSWR 1.05:1 max.	50 ohms, VSWR 1.05:1 max.	50 ohms, VSWR 1.05:1 max.
Connectors main line coupled	C female BNC female	N female BNC female	N female BNC female	EIA flange 1⅝ in. male BNC female	C female BNC female	C female BNC female	N female BNC female
Weight (max.)	0.9 kg 2.0 lb	0.9 kg 2.0 lb	0.9 kg 2.0 lb	6.8 kg 15.0 lb	0.23 kg 0.5 lb	0.23 kg 0.5 lb	0.6 kg 1.2 lb
Size (approximate W × H × D)	26.6 × 8.1 × 7.6 cm 10.1 × 3.2 × 3.0 in.	12.7 × 5.1 × 3.8 cm 5.0 × 2.0 × 1.5 in.	12.7 × 5.1 × 3.8 cm 5.0 × 2.0 × 1.5 in.	30.4 × 15.2 × 15.2 cm 12 × 6 × 6 in.	8.3 × 3.2 × 5.3 cm 3.3 × 1.3 × 2.3 in.	8.3 × 3.2 × 5.3 cm 3.3 × 1.3 × 2.3 in.	10.9 × 6.3 × 3.2 cm 4.3 × 2.5 × 1.3 in.

Wideband fiberoptic links

Differing mainly in dynamic range and certain control refinements, these fiberoptic telemetry systems are designed for the faithful transmission of broadband analog data in the midst of high-intensity (up to 100 kV/m) electromagnetic fields, EMP, and nuclear radioactivity.



Four sensor inputs are standard on the Sentinel and Sentry systems. Transmitters are battery-powered and shielded against the aforementioned severe environments.

Input attenuation is accomplished through integral switchable attenuators, adjustable to 45 dB in 3-dB steps. A switchable active integrator with two time constants is standard.

Automatic level control (ALC), unique to these systems, reduces problems created by poorly-mated optical connectors and other familiar optical-link aberrations. An IEEE-488 interface permits fully automated testing, continuous monitoring of system status, and easy information interchange with host computers.

SPECIFICATIONS

Model Number	SENTINEL 1000FOL	SENTRY 1000FOL
3-dB bandwidth	1.2 kHz–1.1 GHz	1.2 kHz–1.1 GHz
1-dB bandwidth	1.8 kHz–1.0 GHz	1.8 kHz–1.0 GHz
SNR (p-p signal/rms noise)	≥45 dB	≥38 dB
Input sensitivity for rated SNR	22.3 mV p-p	22.3 mV p-p
Passband flatness	±1 dB	±1 dB
System gain (0 dB attenuation)	21 dB	21 dB
Pulse response overshoot	≤5%	≤5%
Input attenuation	0–45 dB (3-dB steps)	0–45 dB (3-dB steps)
Active integrator time constants	1 and 10 μs	1 and 10 μs
Output signal level (into 50 ohms)	– 8 dBm (250 mV p-p)	– 8 dBm (250 mV p-p)
Input/output impedance	50 Ω	50 Ω
Harmonic distortion	≤– 34 dBc	≤– 34 dBc
Squarewave calibrate signal	250 mV p-p @ 100 kHz	250 mV p-p @ 100 kHz
Maximum EMI environment	100 kV/meter	100 kV/meter
Operating temp range, transmitter	– 5 to +40°C	– 5 to +40°C
Operating temp range, receiver	5 to 40°C	5 to 40°C
Transmitter battery operating time	8 hr continuous 500 hr standby	8 hr continuous 500 hr standby
Mechanical details		
Transmitter: dimensions (mm) weight	100 Dia. × 220L 2.2 kg	100 Dia. × 220L 2.2 kg
Receiver: dimensions (mm) weight	300W × 150H × 315D 6.6 kg	300W × 150H × 315D 6.6 kg
Fiberoptic cable length	50 m standard, 400 m maximum	50 m standard, 400 m maximum

Fiberoptic CCTV systems

For EMI and EMP environments

The FOL CCTV and SCOUT CCTV FOL systems provide interference-free transmission of video signals in hostile EMI environments. They can be used for closed-circuit television monitoring in EMP and EMC testing, and in the vicinity of high electromagnetic fields.

Features:

- Video camera shielded to 100kV/m (FOL CCTV); 220 V/m (SCOUT CCTV FOL);
- Monochrome (FOL CCTV) or Color (SCOUT CCTV FOL);
- Transmission up to 250 meters via fiberoptic cable;
- 8 hours continuous battery operation or external power supply;
- Remote control of video camera;
- Remote control of Camera Pan and Tilt (SCOUT).

Both systems include a CCD camera with an electro-optic converter, and battery power supply which can power the cameras for up to 8 hours. A connector for an external power supply is provided for very long periods of operation. The cameras are shielded by double screened metal cases.

The ac-powered receiver and monitor can be supplied either in a free-standing case or configured for mounting in a 19-inch rack. Optional remote control of the camera, and alternative monitor screen sizes are available.

The video camera and monitor are connected via a ruggedized fiberoptic signal cable, and standard lengths up to 250 meters are available. A fiberoptic control cable will be included if the remote-control option is selected for the FOL CCTV.

SPECIFICATIONS

	FOL CCTV monochrome	SCOUT CCTV FOL color
SYSTEM SPECIFICATIONS		
EMI shielding	>100kV/m	200 V/m
System resolution	250 lines	575 x 576 pixels
Camera lens	16 mm	12.5 to 75 mm motorized zoom and focus with auto iris
Monitor	9″	See factory
Battery life (continuous)	8 hr	8 hr
MECHANICAL DETAILS		
Camera W x H x D Weight Receiver W x H x D Weight	80 x 135 x 265 mm 3 kg 250 x 90 x 180 mm 1 kg	290 x 120 x 120 mm 3.5 kg
OPTIONS		
Lenses	Wide angle Telephoto Zoom	NA
Other monitor sizes	On request	On request
Fiberoptic cables	50 m 100 m 150 m 200 m 250 m Others on request	50 m 100 m 150 m 200 m 250 m Others on request
Remote control	On request	Standard

Power combiner/dividers

Models PC1000 and PC2000, selected primarily according to power-handling capability, may be used either as power combiners or as dividers for general rf testing. They either combine the signals from four amplifiers or divide the signal from a single amplifier into four outputs. Ultra-broad operating bandwidth.

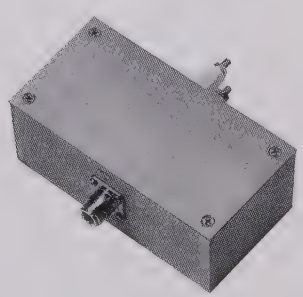
SPECIFICATIONS

	Model PC1000		Model PC2000
Frequency range	at 1-1000 MHz	at 2-500 MHz	1-1000 MHz
Insertion loss			
typical	0.8 dB	0.6 dB	0.6 dB
maximum	1.2 dB	0.8 dB	1.0 dB
Coupling	– 6 dB	– 6 dB	– 6 dB
Power at combined port	15 watts	25 watts	100 watts
Isolation			
typical	25 dB	30 dB	25 dB
minimum	20 dB	25 dB	20 dB
Impedance (all ports)	50 ohms	50 ohms	50 ohms
VSWR (maximum at all ports)	1.5:1	1.3:1	1.5:1
Phase unbalance			
(degrees maximum)	6	4	6
Connectors			
combined port	SMA female		N female
divided ports	SMA female		SMA female
Size (W × H × D)	5.1 × 5.1 × 12.7 cm 2.0 × 2.0 × 5.0 in.		12.7 × 5.9 × 15.3 cm 5.0 × 2.3 × 6.0 in.

High-power rf matching transformers

Amplifier Research rf matching transformers permit matched impedance between our high-power broadband rf amplifiers (50-ohm output impedance) and instruments of related technologies requiring rf power such as ultrasonic generators, lasers, rf heaters, and many piezoelectric devices. Power ratings to 2000 watts cw, 5000 watts pulse.

Insertion loss . . . . . 0.35 dB maximum
VSWR . . . . . 1.3:1 maximum



SPECIFICATIONS

Model	Frequency Range	Power Rating		Input		Output	
		watts cw	watts pulse	impedance	connector	impedance	connector
MT 1001	1-220 MHz	500	1500	50Ω	Type N	12.5Ω	screw terminals
MT 1002	1-220 MHz	500	1500	50Ω	Type N	200Ω	screw terminals
MT 1003	1-220 MHz	2000	5000	50Ω	Type C	12.5Ω	screw terminals
MT 1004	10-220 MHz	2000	5000	50Ω	Type C	200Ω	screw terminals
MT 1005	10kHz-10MHz	2000	5000	50Ω	Type C	12.5Ω	screw terminals
MT 1006	10kHz-10MHz	2000	5000	50Ω	Type C	200Ω	screw terminals

Computer interfaces

Models CP3000 and CP2001

- **IEEE-488 bus interface or TTL**
- **Compatible with many AR amplifiers**

The CP3000 acts as its own controller directly off the IEEE-488 bus, or manually via its front-panel pushbutton switches, while the CP2001 responds to TTL-level signals, usually from an external programmable controller which in turn is controlled off the IEEE-488 (GPIB) bus.

Optical isolators or relays assure complete electrical isolation between bus and amplifier, protecting them from ground loops and unwanted rf feedback. Since operating power is taken from the host computer, noise from power-line connections is eliminated.

Amplifier operating status (power on/off, standby, operate, pulse) is indicated on both models by front-panel LEDs. The CP3000 also includes fault-reset and blanking-enable.

25-ft cables with connectors are supplied with both models.

SPECIFICATIONS

	CP3000	CP2001
Amplifier control commands	POWER ON/OFF, STANDBY, OPERATE, PULSE, RESET, BLANK ENABLE.	POWER ON/OFF, STANDBY, OPERATE, PULSE.
Amplifier status commands	STATUS, IDENTIFY	
Connectors	25-pin subminiature "D" to amplifier; IEEE-488 to bus; BNC female to blanking input and output.	25-pin subminiature "D" to amplifier; TTL-level inputs and outputs for control functions.
Primary power	Low-voltage dc or ac from host amplifier.	Low-voltage dc or ac from host amplifier.
Amplifier cable	25-ft multiconductor cable with matching connectors to amplifier; 25-ft coax cable with BNC connectors for blanking signals.	25-ft multiconductor cable with matching connectors to amplifier; 25-ft coax cable with BNC connectors for blanking signals.
Dimensions (W × H × D)	17.8 × 7.6 × 18.3 cm (7.0 × 3.0 × 7.2 in.)	(23.4 × 10.5 × 21.0 cm (9.4 × 4.2 × 8.3 in.)
Weight	0.9 kg (2 lb)	1.8 kg (3.5 lb)

Rf connection kit

Model AK1000

The Model AK1000 accessory kit provides various test cables, connectors, and coax adapters useful for connecting Amplifier Research equipment into an rf test setup. This parts kit also includes special fuses not usually found in the laboratory. Excellent value. Convenience. Variety of connection possibilities.

Fabricated cables
2—type C male to C male, 150 cm (RG-393/U cable)
1—type C male to N male, 150 cm (RG-393/U cable)

Coax adapters
1—type C male to type C male
1—type C female to type C female
2—type C male to type N female
4—type N male to type BNC female
2—type BNC male to type N female
2—type BNC female to type BNC female
2—type N female to type N female

Coax connectors
8—type BNC male for RG-188A/U cable
8—type BNC male for RG-142B/U cable
8—type N male for RG-142B/U cable

Coax cable
10 meters—RG-188A/U coax cable
10 meters—RG-142B/U coax cable

Fuses (High-voltage for plate supplies)
5—type BBS-5 (5 amps, 600 volts)

Lamps
6—type 7374—28V

Power amplifiers and antennas

Broadband power amplifiers

The wide line of AR high-power amplifiers covers the frequency range from 10 kHz to 1 GHz, at minimum output levels from one watt to ten kilowatts. Unconditionally tolerant to load mismatch, and delivering full bandwidth instantly without need for tuning or bandswitching, AR amplifiers are conservatively rated by minimum, rather than by peak or nominal, output power. See our helpful "Guide to broadband power amplifiers."

Broadband antennas

Amplifier Research is the only manufacturer of high-power broadband amplifiers who also manufactures a complete range of antennas to match the bandwidths and power output of those amplifiers. This is an especially important factor in rf susceptibility testing, where electric and magnetic field intensities must be controlled and predictable. A useful antenna "primer" is included in our booklet "Antennas for rf testing."

AMPLIFIER RESEARCH

160 School House Road, Souderton, PA 18964-9990 USA
TEL 215-723-8181 • FAX 215-723-5688

Warranty • *Amplifier Research warrants its amplifiers, antennas, and directional couplers to be free of defects in materials and workmanship for a period of two years from date of shipment. Vacuum tubes and other products carry a one-year warranty. See your equipment manual for full statement of warranty conditions and limitation of liability.*

Printed in U.S.A.

REV 0392
4630—92-4—4k

ML 1001782-501 MODEL DC3001

DESCRIPTIVE INFORMATION	SUPPORT DOCUMENTS
FREQUENCY 100KHz-1000MHz	TEST DATA SHEET 1001812
POWER OUT	TEST PROCEDURE
PRIMARY POWER	ENVELOPE DWG
COOLING NATURAL CONVECTION	SALES DATA SHEET - INFORMAL PRINTED
PACKAGE	MANUAL CLASS (SEE REVERSE SIDE)
OPTIONS INCLUDED	REMARKS

MATERIAL PULL INFORMATION												MANUAL INFO				
ASSY LEVEL								DESCRIPTION	QTY	ASSEMBLY NUMBER	S	PL	AS	SC	SCHEMATIC NUMBER	S
1	2	3	4	5	6	7	8									
X								COUPLER, DIRECTIONAL	1	1001782-101						
	X							MANUAL	4	1004488-501						

FORM 109 REV0378

AMPLIFIER RESEARCH

DATE	R	DATE	R
3JAN 83	—		

MASTER LIST

MASTER LIST APPROVAL

ML 1001782-501	MODEL DC3001	SHT 2 OF 2

DATE	REV	ECN NO.	APPROVAL	DATE	REV	ECN NO.	APPROVALS
3 JAN 83	—	—	M. Rollins 5/31/90				

FORM 108C REV0490

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WARRANTIES: LIMITATION OF LIABILITY

Seller warrants (i) that seller has title to the goods sold and (ii) that Amplifiers, Antennas, and Directional Couplers will be free from defects in material and workmanship for a period of two (2) years from date of shipment shown on Amplifier Research invoice; Vacuum Tubes and other products will be free from defects in material and workmanship for a period of one (1) year. Seller's sole responsibility in fulfilling these warranties shall be to repair or replace any goods which do not conform to the foregoing warranties or, at seller's option, to give buyer credit for defective goods. Warranty service will be provided only for defective goods which are returned within the warranty period, freight costs prepaid, to Amplifier Research or its designated repair facility.

THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS. SELLER SHALL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM ANY BREACH OF WARRANTY.

No person other than an officer of Amplifier Research Corporation, has any authority to bind seller to any affirmation, representation or warranty except as specifically included in the preceding terms and conditions.

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